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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/718,007	11/21/2000	Xi Jiang	705835US1RAF	9318

7590 04/29/2004

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EXAMINER	
D AGOSTA, STEPHEN M	

ART UNIT	PAPER NUMBER
2683	9

DATE MAILED: 04/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/718,007	JIANG, XI	
	Examiner	Art Unit	
	Stephen M. D'Agosta	2683	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 April 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *7,8,10-22,24 and 28-37* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *7,8,10,17,18,21,22,24 and 28-37* is/are rejected.

7)☒ Claim(s) *11-16 and 19-20* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

Applicant's arguments with respect to claim 7,8,10-22,24 and 28-37 have been considered but are moot in view of the new ground(s) of rejection.

1. A new rejection is shown below.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 7-8 and 10 rejected under 35 U.S.C. 103(a) as being unpatentable over Liu, Jones and Bruggemann and further in view of Lyons US 6,282,412.

As per **claim 7**, Liu teaches a mobile device with method for selecting which in a plurality of wireless communication options will be used by the mobile device comprising the steps of:

B. determining at the mobile where on the route the mobile device is as it traverses the route (abstract)

D. determining whether to switch from a first one of the wireless communication options presently being used to a second one when the device approaches a boundary of a coverage area (abstract)

E. switching from the first wireless option to a second one when the mobile crosses the boundary if the determination was made to switch to the second option (abstract and figures 20-23, 25a/25b show options).

But is silent on

c. accessing a database to obtain information regarding the communication options available along the route

A. storing in a database mobile information indicative of coverage areas for each of the plurality of wireless options along the route the mobile will traverse including storing boundary locations of the coverage areas for the wireless options along the route where the boundary locations stored are limited to boundary locations that are on streets of the route;

wherein one of the plurality of wireless options is not using any wireless communication.

Liu does teach the system having knowledge of the coverage areas the mobile is near (C1, L58-67 to C2, L10). **Lyons** teachs a receiver with memory card to store information concerning a determined number of broadcast stations that serve at least a portion of a user-designated geographic area, and which have a program style that suits a designated user preference. Information corresponding to each station's operating or carrier frequency and an associated service coverage area, is stored by the card (C2, L33-44). If a preference isn't found, the user always has the option of not using wireless communications or a specific option requested.

Jones teaches tracking a vehicle on a predetermined schedule/route based on GPS tracking and cellular system (abstract and figure 1) while **Bruggemann** teaches transponders suitable for a navigation system for motor vehicles in which a predetermined route, or desired destination, is stored in a navigation apparatus of each vehicle by means of an input device. In the respective transponders, in this case, directional information and/or street names, can be stored which are read by navigational apparatus of vehicles and compared with desired data C5, L61-67 to C6, L1-2).

Liu teaches knowledge of network services and resources (eg. coverage areas) the mobile user is near or moving toward (abstract) **but is silent on** a database. **Jones** teaches the storage device (eg. database) includes historical travel data pertaining to the vehicle schedule along the route. The historical travel data comprises a plurality of predetermined location values corresponding respectively with a plurality of locations along a predetermined route of travel of the mobile vehicle. The predetermined location values are respectively associated with time values stored in the storage device. The processor uses one of the plurality of predetermined location values (along with its associated time value), a current time, and a current location value received from the sensor to determine whether the vehicle is off schedule. If the vehicle is off schedule by at least a predefined amount, the processor causes the communications device to transmit a message to a remote computer, associated with a tracking system or an advance notification system, indicating that the vehicle is off schedule by a specified time and/or distance (C3, L7-32).

It would have been obvious to one skilled in the art at the time of the invention to modify Liu, such that route/coverage data is stored in the mobile AND a database is used, to provide means for storing all possible data regarding route/coverage information for a trip route.

As per **claim 8**, Liu teaches claim 7 and a "soft data structure handover" (abstract) which reads on the claimed limitation (connection to second system before dropping connection to first system).

As per **claim 10**, Liu teaches claim 7 **but is silent on** further including obtaining updated information concerning the coverage areas of the wireless communication options and updating the database with updated information.

Liu teaches a cellular system which inherently is aware of it's own coverage areas/cells.

Bruggemann teaches transponders that are set in pavement for vehicle navigation (abstract and figures). One skilled in the art knows that as new pavement transponders are added to new pavement locations, the system will receive this new data and update it's database.

It would have been obvious to one skilled in the art at the time of the invention to modify Liu, such that updated data can be received and stored, to provide means for newly received data to be stored in the device/system as the user roams.

Claims 17-18, 21, 28-33 and 36-37 rejected under 35 U.S.C. 103(a) as being unpatentable over Liu US 5,825,759 and further in view of Jones US 6,363,323 or Bruggemann US 5,493,291 and Andersson et al. US 5,530,917 or Mueller (hereafter Liu, Anderson and Jones or Bruggemann or Mueller (claim 21)).

As per **claim 17**, Liu teaches a method of storing data in a database that is indicative of coverage areas for wireless communication options along a route that a mobile communication device is traversing, comprising the steps of:

a) storing boundary locations of the coverage areas for the wireless communication options along the route in the database

b) periodically obtaining updated information at the location of the mobile concerning the coverage areas of the wireless options as the mobile device traverses the route (abstract).

but is silent on

c) updating the database with updated information AND where the boundary locations are boundary locations on streets of the route

Jones teaches the storage device (eg. database) includes historical travel data pertaining to the vehicle schedule along the route. The historical travel data comprises a plurality of predetermined location values corresponding respectively with a plurality of locations along a predetermined route of travel of the mobile vehicle (C3, L7-32).

Bruggemann teaches described transponders can be set in the roadway pavement for a navigation system for motor vehicles in which a predetermined route, or desired destination, is stored in a navigation apparatus of each vehicle by means of an input device. In the respective transponders, in this case, directional information and/or **street names**, can be stored which are read by navigational apparatus of vehicles passing over and compared with desired data (C5, L61-67 to C6, L1-2).

It would have been obvious to one skilled in the art at the time of the invention to modify Liu, such that the database is updated with boundary/street locations, to provide means for the user to know when they are approaching a boundary/handoff and the street name associated with said boundary.

As per **claim 18**, Liu teaches claim 17 wherein the step of updating includes determining whether the updated information is for a present location,

a) if the updated information is for a present location, then storing the updated information

b) if the updated information is for a present location, comparing the updated information updating the stored information if updated information is different from the stored information (abstract and C2, L11-43 teaches knowledge of multiple networks).

But is silent on a database.

Jones teaches the storage device (eg. database) includes historical travel data pertaining to the vehicle schedule along the route. The historical travel data comprises a plurality of predetermined location values corresponding respectively with a plurality of locations along a predetermined route of travel of the mobile vehicle. The predetermined location values are respectively associated with time values stored in the storage device. The processor uses one of the plurality of predetermined location values (along with its associated time value), a current time, and a current location value received from the sensor to determine whether the vehicle is off schedule. If the vehicle is off schedule by at least a predefined amount, the processor causes the communications device to transmit a message to a remote computer, associated with a tracking system or an advance notification system, indicating that the vehicle is off schedule by a specified time and/or distance (C3, L7-32).

It would have been obvious to one skilled in the art at the time of the invention to modify Liu, such that a database is used, to provide means to store all pertinent route/option data in a commercial database software package.

As per **claims 21, 28-29**, Liu teaches a method of selecting which of a plurality of wireless communication options will be used by a mobile device, comprising the step of selecting which wireless communication option to use based on a location of the mobile communication device on a route and the availability for use of each of the plurality of wireless communication options along the route (abstract) – periodically obtaining updated information at the location of the mobile device (abstract).

But is silent on the route (eg. being known beforehand).

Jones teaches tracking a vehicle on a predetermined schedule/route based on GPS tracking and cellular system (abstract and figure 1) while **Bruggemann** teaches transponders suitable for a navigation system for motor vehicles in which a predetermined route, or desired destination, is stored in a navigation apparatus of each vehicle by means of an input device. In the respective transponders, in this case, directional information and/or street names, can be stored which are read by navigational apparatus of vehicles and compared with desired data (C5, L61-67 to C6, L1-2).

With further regard to claim 21, Lie **is silent on** determining which option to use and when to use it includes making determination based upon the cost to use and performance level of each option AND wherein one option is not using any wireless communcations. Mueller teaches a mobile station with memory device in which a number of available applications are stored which can relate to different "carriers," i.e.,

mobile radio network systems or service providers within a single mobile radio network. A selection device of the mobile station calculates expected charges for a desired connection for each of these applications which are being considered for the transmission connection. Based upon the calculations, the most cost-efficient application for the desired transmission is selected. The actual transmission of the communication data for the base station is then carried out on the basis of this application (Abstract).

With further regard to claim 28, Liu teaches cellular networks which are known in the art to have cell base stations/towers near roadways and highways (Liu also discloses data connectivity to the Internet, figure 18, which can be via wireless LAN technology (IEEE 802.11) which provides high bandwidth and limited geographical coverage). Since Liu teaches mobile data networking and connectivity to the Internet (figure 18), the content provider would respond back to the mobile user via an appropriate base station for full duplex communication via the TCP/IP protocol.

With further regard to claim 29, Liu teaches a system that uses a predictive mobility algorithm to determine where a mobile user is likely to be (which reads on determining a predicted time when the vehicle will be able to communicate with an info-fueling station* having a known/predictable position) [abstract].

It would have been obvious to one skilled in the art at the time of the invention to modify Liu, such that the route is known beforehand, to provide means for inputting the route a user is to take so the device can track progress and inform the user if they are off course.

Andersson teaches base stations can be fixed or mobile (C20, L61-65) as can be wireless LAN systems if mounted on a mobile object.

It would have been obvious to one skilled in the art at the time of the invention to modify Liu, such that the info-fueling station/base station is movable, to provide means for the station to be moved/relocated as needed for optimal RF communications.
*the examiner interprets an "info-fueling station" as a generic server that is connected to a localized high-speed wireless network (such as an IEEE802.11 network).

As per **claim 30**, Liu teaches claim 29 **but is silent on** wherein said info-fueling station has a fixed position relative to vehicles.

Bruggemann teaches roadway transponders that can allow the vehicle to determine it's location and the location of fixed objects (eg. traffic speed sign of figure 2, a transponder is built into a roadway pavement near a speed limit traffic sign. Information corresponding to that of the traffic sign 17 is stored in the memory 8 of the transponder 1. If a vehicle 13 with a coil antenna 14 drives over the transponder 1 then energy is transferred to the transponder 1 via the coil antenna 14 so that it, the transponder, is activated and sends out its stored, or memorized, information as a digital code signal. This energy transfer can be caused by a changing magnetic field at the transponder. The transponder information is received by the coil antenna 14 so that, via the read-out device 4 and the analyzing circuit 15, the information of the traffic sign 17 is shown on the indicating device) [C3, L50-67 to C4, L1-2].

It would have been obvious to one skilled in the art at the time of the invention to modify Liu, such that an info-fueling station has a fixed position, to provide means for the station to always be at a known, fixed location the user can roam to for data.

As per **claim 31**, Liu teaches claim 29, **but is silent on** an information request identifies said info-fueling station.

Liu does teach a predictive mobility algorithm that can determine where the mobile is likely to be.

Bruggemann teaches roadway transponders that can provide pinpoint accuracy as to the location of the user [C3, L50-67 to C4, L1-2]. While Bruggemann teaches a passive transponder that must be driven over, one skilled in the art would also use an information request and/or a GPS query for location information).

It would have been obvious to one skilled in the art at the time of the invention to modify Liu, such that an information request is used to identify the info-fueling station, to provide means for manual (and/or automatic) determination of a station.

As per **claim 32**, Liu teaches claim 29, **but is silent on** the wireless network identifies said info-fueling station.

Liu does teach a predictive mobility algorithm that can determine where the mobile is likely to be.

Bruggemann teaches roadway transponders that can provide pinpoint accuracy as to the location of the user AND fixed objects such as traffic speed signs, etc. and one skilled in the art would also provide means for identifying any other object (eg. info-fueling station) [C3, L50-67 to C4, L1-2].

It would have been obvious to one skilled in the art at the time of the invention to modify Liu, such that the wireless network identifies the info-fueling station, to provide manual (or automatic) determination of the location/identity of said info-fueling station via the wireless network.

As per **claim 33**, Liu teaches claim 29, **but is silent on** the wireless device being coupled to an on-board communication network in said vehicle.

Bruggemann teaches an on-board communication network/system in a vehicle (abstract and figure 2).

It would have been obvious to one skilled in the art at the time of the invention to modify Liu, such that the wireless device is onboard a vehicle, to provide a system for use within a car/vehicle.

As per **claim 36**, Liu teaches claim 29 **but is silent on** a movable info-fueling station.

Andersson teaches base stations can be fixed or mobile (C20, L61-65) as can be wireless LAN systems if mounted on a mobile object.

It would have been obvious to one skilled in the art at the time of the invention to modify Liu, such that the info-fueling station is movable, to provide means for the station to be moved/relocated as needed for optimal RF communications.

Claim 22 rejected under 35 U.S.C. 103(a) as being unpatentable over Liu, Jones, Bruggemann and Andersson and further in view of Mueller et al. US 6,185,413 (hereafter Mueller).

As per **claim 22**, Liu teaches claim 21 **but is silent on** determining cost of each wireless system.

Mueller teaches a mobile station with memory device in which a number of available applications are stored which can relate to different "carriers," i.e., mobile radio network systems or service providers within a single mobile radio network. A selection device of the mobile station calculates expected charges for a desired connection for each of these applications which are being considered for the transmission connection. Based upon the calculations, the most cost-efficient application for the desired transmission is selected. The actual transmission of the communication data for the base station is then carried out on the basis of this application (Abstract).

It would have been obvious to one skilled in the art at the time of the invention to modify Liu, such that cost is determined for each system, to provide means for the user to know the cost associated with each system it can connect with.

Claim 24 rejected under 35 U.S.C. 103(a) as being unpatentable over Liu in view of Mueller and Wieczorek.

As per **claim 24**, Liu teaches a method of providing a uniform content access layer application program interface for application programs that use mobile communications provided by a mobile device (abstract and figures 18-25b) **but is silent on** comprising the steps of:

a) providing a database accessible by the application program at the mobile device

b) storing in the database information concerning wireless options that are available for use by the mobile communication device as it traverses a route

c) the application program deciding its requirements for data transfer via wireless communication based on the information about wireless communications stored in the database and wherein the information about options stored in the database includes information concerning cost and performance of the options.

Mueller teaches a mobile station having a number of applications that chooses a wireless network based on least cost and a database (abstract and figure 1, #18). **Wieczorek** teaches a method for optimizing resource allocation that chooses a wireless network based on loading conditions/data transfer capability (abstract). One skilled in the art would provide for Mueller's program to also decide based on system loading.

It would have been obvious to one skilled in the art at the time of the invention to modify Liu, such that an application program can access a database and decide requirements for communication, to provide means for the application to determine which network(s) can provide the optimal data transfer.

Claim 34 rejected under 35 U.S.C. 103(a) as being unpatentable over Liu, Jones, Bruggemann and Andersson and further in view of Bottomley.

As per **claim 34**, Liu teaches claim 29 and the ability to pre-arrange for communications when a mobile user roams freely (abstract) which reads on the entire claim except for the fact of **being silent on** signal strength.

Bottomley teaches measuring signal strength for determining a hand-off condition which can be used on several access technologies/systems (ie. FDMA, TDMA and CDMA) [title and abstract].

It would have been obvious to one skilled in the art at the time of the invention to modify Liu, such that signal strength is used, to provide means of knowing when a handoff will occur based on signal strength.

Claim 35 rejected under 35 U.S.C. 103(a) as being unpatentable over Lie, Jones, Bruggemann and Andersson and further in view of Baker US 6,505,046 (hereafter Baker).

As per **claim 35**, Liu teaches claim 29 **but is silent on** the wireless network routes previously stored requests for information to said vehicle through said info-fueling station.

Baker teaches a short message service center is a specialized computer system that accepts short message requests from various network entities. The message requests are stored and forwarded to various subscribers when they become available in the network (i.e., they turn their phone on) [C6, L56-61].

It would have been obvious to one skilled in the art at the time of the invention to modify Liu, such that previously stored requests are routed, to provide means for storing (and not deleting) requests that cannot be delivered.

Allowable Subject Matter

Claims 11-16 and 19-20 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

In the examiner's opinion, these claims recite highly specific design details not found in the prior art cited.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen M. D'Agosta whose telephone number is 703-306-5426. The examiner can normally be reached on M-F, 8am to 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bill Trost can be reached on 703-308-5318. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Stephen D'Agosta
4-22-04